

**Conference Information:**

Human Factors and Ergonomics Society 2016 Annual Meeting

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Location: Washington DC

The following summary will be included in the meeting proceedings as part of the Panel on **Recent Trends in Human Systems Integration**

**Panel Chair:**

John A. Plaga, 711th Human Performance Wing, Wright-Patterson AFB, OH

**Panel Participants:**

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**HSI in NASA: From Research to Implementation**

As NASA plans to send human explorers beyond low Earth orbit, onward to Mars and other destinations in the solar system, there will be new challenges to address in terms of HSI. These exploration missions will be quite different from the current and past missions such as Apollo, Shuttle, and International Space Station. The exploration crew will be more autonomous from ground mission control with delayed, and at times, no communication. They will have limited to no resupply for much longer mission durations. Systems to deliver and support extended human habitation at these destinations are extremely complex and unique, presenting new opportunities to employ HSI practices. In order to have an effective and affordable HSI implementation, both research and programmatic efforts are required.

Currently, the HSI-related research at NASA is primarily in the area of space human factors and habitability. The purpose is to provide human health and performance countermeasures, knowledge, technologies, and tools to enable safe, reliable, and productive human space exploration beyond low Earth orbit, and update standards, requirements, and processes to verify and validate these requirements.

In addition, HSI teams are actively engaged in technology development and demonstration efforts to influence the mission architecture and next-generation vehicle design. Finally, appropriate HSI references have been added to NASA's systems engineering documentation, and an HSI Practitioner's Guide has been published to help design engineers consider HSI early and continuously in the acquisition process. These current and planned HSI-related activities at NASA will be discussed in this panel.